AMENDMENTS TO THE DRAWINGS:

Replacement drawing figures are submitted for Figures 1A, 1B, 1C, 2A, 2B, 2C, 3A, 3B, 3C, 4A, 4B, 4C labeling these figures as prior art.

REMARKS

The specification has been amended to make editorial changes to place the application in condition for allowance at the time of the next Official Action.

In response to the drawing objection noted in item 2 of the Official Action, replacement drawings are submitted for Figures 1A-4C, labeling these figures as "PRIOR ART".

As to the drawing objection to the "horizontal shift register" noted in the Official Action, applicant notes that Figure 6 shows horizontal shift register region 114. As disclosed on page 12, lines 9-18 of the application as filed, the imaging area 111 includes the horizontal shift register region 114.

Figure 8A of the present application shows horizontal shift register electrodes 229. As disclosed on page 14, lines 1 and 2, the plurality of vertical and horizontal shift register electrodes 228, 229 are in the imaging area. Based on these passages, applicant asserts that one of ordinary skill in the art would understand that the horizontal shift register electrodes 229 are in the imaging area 111 as recited in claim 1.

Page 14, lines 2-4 in conjunction with Figure 8A further provide that the vertical and horizontal shift register electrodes in the imaging area extend into the peripheral area to thereby form a plurality of shift register electrodes 230 in the peripheral area. Therefore, one of ordinary skill would

understand that element 229 of Figure 8A is a horizontal shift register electrode in the imaging area and element 230 is a horizontal shift register electrode in the peripheral area.

As to the objection to the "planarized surface", Figures 16B, 16C, 7A and 7B show interlayer insulator 206, 306 having a planarized surface. Page 19, lines 22-28 disclose that since the insulating film (318) is planarized, the overlying layers are substantially planarized as shown.

Regarding the "electrical connection" drawing objection, Figures 8B and 19C as filed show a peripheral area with a light shielding metal layer (208 of Figure 8B and 608 of Figure 19C) making electrical connection to the shift registers (230, 630) as claimed in claim 26.

In view of the replacement drawing sheets and foregoing comments, it is believed that the drawing objections are overcome and that no new matter is presented.

Claims 1-29 are pending in the application. Claims 4, 6, 7, 14-16, 20, 25, 28 and 29 are withdrawn from consideration as being directed to a non-elected species.

Claims 1-3, 5, 8-13, 17-19, 21-24, 26 and 27 are amended and believed to address the claim objections noted in the Official Action.

Claims 1-3, 5, 8-13, 21-24, 26 and 27 are amended to address the 35 USC §112, first paragraph written description

requirement rejections based on the recited "horizontal shift register".

The Examiner states that the structure and function of the horizontal shift register electrodes and their relationship to the vertical shift register electrodes is not adequately disclosed.

To satisfy the written description requirement, the applicant must provide sufficient detail so that one of ordinary skill in the art can reasonably conclude that the inventor had possession of the claimed invention.

Applicant initially notes that horizontal shift register electrodes are known as disclosed in the discussion of the related art on page 1, line 11 through page 4, line 7 of the present specification.

Page 20, line 31 through page 21, line 15 disclose horizontal shift register electrodes in conjunction with Figure 18. This passage provides that the electrodes permit signal charges to be effectively transferred.

Since horizontal shift register electrodes are known and since the present specification provides additional information as to the function of these electrodes as they pertain to the present invention, one of ordinary skill in the art could reasonably conclude that applicant had possession of the horizontal shift electrodes (as claimed).

In addition, Megamont.com defines a horizontal shift register as "a part of the CCD chip to which the charge and the pixels is transferred line by line. This charge is then converted into an analog video signal."

This same web site further teaches that the vertical shift register is defined as "a part of the interline transfer CCD chip and is placed in between every column of pixels. At the end of each frame, the charge and the pixels are sent to the vertical shift register and then row by row to the horizontal shift register".

Accordingly, based on these definitions and the foregoing remarks, one of ordinary skill in the art would understand that a CCD-type imaging device includes both horizontal shift register electrodes and vertical shift register electrodes. Also based on these definitions and the remarks, one of ordinary skill in the art would understand the interrelation between these electrodes. Applicant uses these terms consistent with the use in the arts such that the 35 USC §112, first paragraph written description requirement is believed met and the rejection should be withdrawn.

The term "planarized surface" is removed from claims 1, 8 and 22 to address the §112, first paragraph written description requirement rejection as to these claims.

Claims 17-19, 21, 23, 24, 26 and 27 are rejected as anticipated by applicant's disclosed prior art. This rejection is respectfully traversed.

Claim 17 is amended to include a second insulating film that is only on the peripheral area and the charge transfer section. Claim 17 also provides that an interlayer insulation film covers this second insulating film, the shift register electrodes and the elongated portion of each of the shift register electrodes, so that the combination of the insulation films in the peripheral area is thicker than the combination of insulating films of each of the photoelectric conversion elements.

By way of example, as seen in Figure 16C of the present application, the peripheral area includes three films: field isolation dielectric 352, the insulating film 318 and the interlayer insulation film 306 so that the insulation in the peripheral area is thicker than the insulation of each of the photoelectric conversion elements (319, 320) of Figure 16A, which does not have insulating film 318.

Applicant's disclosed prior art includes only an interlayer insulator 806 and dielectric 352 over the peripheral area as seen in Figure 4C. Applicant's disclosed prior art does not disclose or suggest three different layers of insulation such that an interlayer insulator is over a second insulating film which is over a first insulating film so that insulation in the

peripheral area is thicker than the insulation of the photoelectric conversion elements.

"For a prior art reference to anticipate, every element of the claimed invention must be identically shown in a single reference". *In re Bond*, 910 F.2d 831, 15 USPQ2d 1455, 1567, 1568 (Fed. Cir. 1990).

Applicant's disclosed prior art does not show every element recited in claim 17. Therefore, applicant's disclosed prior art cannot anticipate claim 17.

Claims 18 and 19 depend from claim 17 and further define the invention and are also believed patentable over applicant's disclosed prior art.

Claim 21 is similarly amended and includes an insulating film on the field isolation dielectric and the gate insulating film except where the photoelectric conversion elements are formed. An interlayer insulation film covers the insulating film and the plurality of shift register electrodes in the imaging area and in the peripheral area so that the interlayer insulation film in the peripheral area is thicker than the interlayer insulation film in the imaging area. The analysis above regarding claim 17 is equally applicable to claim 21.

Claims 23, 24, 26 and 27 depend from claim 21 and further define the invention and are also believed patentable over applicant's disclosed prior art.

Claims 1-3, 5, 8-13 and 22 are rejected as unpatentable over applicant's disclosed prior art in view of JP 2571011 (JP '011) or JP 2000-196060 (JP '060). This rejection is respectfully traversed.

JP '011 is only cited for the teaching of a planarized interlayer insulating layer. JP '011 does not teach or suggest an interlayer insulating film covering an insulating film where the insulating film is formed on a peripheral area and an imaging area except where the photoelectric conversion elements are formed as recited in claim 1.

As seen in Figures 1A and 3B of JP '011, interlayer insulating film 110 is formed over thermal oxide film 109 and covers both the shift register electrodes 104c and the photoelectric conversion elements 113. Accordingly, JP '011 includes an insulation film 109 formed on the photoelectric conversion elements not an insulating film formed on the peripheral area and the imaging area except where the photoelectric conversion elements are formed.

JP '060 fails to teach a peripheral area surrounding an imaging area and thus does not teach an insulating film formed on the peripheral area and the imaging area except where the photoelectric conversion elements are formed as recited in claim 1.

As set forth above, applicant's disclosed prior art does not teach both a second insulating film and an interlayer

insulation film covering the first (gate) insulating film. Accordingly, the proposed combination of references does not render obvious claim 1. Claims 2, 3 and 5 depend from claim 1 and further define the invention and are also believed patentable over the cited prior art.

Claim 8 also includes an insulating film formed on a peripheral area and an imaging area other than where the photoelectric conversion elements are formed and an interlayer insulating film covering the insulating film. The analysis above regarding claim 1 is equally applicable to claim 8. Claims 9-13 depend from claim 8 and further define the invention and are also believed patentable over the cited prior art.

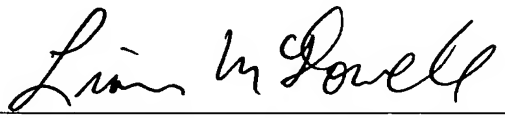
As set forth above, claim 21 includes an insulating film on a field isolation dielectric and a gate insulating film except where the photoelectric conversion elements are formed and an interlayer insulating film covering the insulating film. As also set forth above, the proposed combination of references does not teach or suggest these features. Since claim 22 depends from claim 21 and further defines the invention, the proposed combination of references would not render obvious claim 22.

In view of the present amendment and the foregoing remarks, it is believed that the present application has been placed in condition for allowance. Reconsideration and allowance are respectfully requested.

The Commissioner is hereby authorized in this, concurrent, and future replies, to charge payment or credit any overpayment to Deposit Account No. 25-0120 for any additional fees required under 37 C.F.R. § 1.16 or under 37 C.F.R. § 1.17.

Respectfully submitted,

YOUNG & THOMPSON



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APPENDIX:

The Appendix includes the following item:

- a Replacement Sheets for Figures 1A-1C, 2A-2C, 3A-3C, and 4A-4C